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ABSTRACT

The answer to the question "How well do young people and adults read?" is central to modern societies. Despite new forms of oral and visual communication, the written word is more important than ever in economic and social interaction. As the world becomes more complex, all citizens need to use reading and writing effectively to thrive in their daily lives. Reading literacy means being able to use reading skills to perform a wide variety of tasks in various situations, both within and beyond an educational context. The Organization for Economic Cooperation and Development (OECD) Programme for International Student Assessment (PISA) has established an explicit framework for examining the extent to which students from around the world have these foundation reading literacy skills at age 15, on the eve of their completion of compulsory education. Results of the first PISA survey, in 2000, allow a rich profile to be drawn of reading literacy among 265,000 students in 32 countries who completed pencil-and-paper tests in their schools and filled out questionnaires about themselves. Results show not just how well students can perform in various reading tasks, but also the relationship between reading literacy skills and other characteristics, including the characteristics of their homes and schools, the students' attitudes to reading, and their reading habits. This brochure summarizes the results and considers emerging lessons for policy and practice. Includes extensive data. (NKA)

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

EXECUTIVE SUMMARY

Reading for Change

PERFORMANCE AND ENGAGEMENT ACROSS COUNTRIES

RESULTS FROM PISA 2000

OECD

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Programme for International Student Assessment

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READING LITERACY AND PISA

The PISA survey offers a new framework for assessing reading literacy

How well do young people and adults read? The answer to this seemingly simple question is central to modern societies. Despite new forms of oral and visual communication, the written word is more important than ever in economic and social interaction. As the world becomes more complex, all citizens need to use reading and writing effectively to thrive in their daily lives.

Reading literacy means much more than being able to recognise letters and words. It means being able to use reading skills to perform a wide variety of tasks in various situations, both within and beyond an educational context.

The OECD Programme for International Student Assessment (PISA) has for the first time established an explicit framework for examining the extent to which students from around the world have these foundation reading literacy skills at age 15, on the eve of their completion of compulsory education. The box below summarises PISA's main characteristics.

The results of the first PISA survey, in 2000, allow a rich profile to be drawn of reading literacy among students in 32 countries. The results show not just how well students can perform in various reading tasks, but also the relationship between reading literacy skills and other characteristics, including the characteristics of their homes and schools, the students' attitudes to reading and their reading habits. Looking closely at these results, one can learn more about factors associated with reading success.

Following the publication of *Knowledge and Skills for Life – First Results from PISA 2000*, the reading literacy results are analysed in greater depth in a thematic report, *Reading for Change: Performance and Engagement Across Countries*. Its main findings are summarised in this document.

What is PISA?

- A three-yearly survey, starting in 2000, of knowledge and skills of 15-year-olds in the principal industrialised countries. More than 265,000 students from 32 countries completed pencil-and-paper tests in their schools, and filled out questionnaires about themselves. Schools also provided background information through questionnaires.

- A new way of looking at student performance, assessing young people's capacity to use knowledge and skills to meet real-life challenges. PISA assesses literacy in reading, mathematics and science, as well as asking students about their attitudes and approaches to learning.

- A unique collaboration among countries to monitor educational outcomes. Co-ordinated by the participating governments through the OECD, the survey drew on leading expertise throughout the world to improve information on student outcomes and give countries benchmarks for improvement.

Participating in PISA 2000: 28 OECD countries (all of its then members except Turkey) plus Brazil, Latvia, Liechtenstein and the Russian Federation.

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WHY READING LITERACY MATTERS

The kinds of reading skill assessed in PISA make a demonstrable difference to one's chances in later life.

Reading literacy is needed to function well in adult life, whether in fulfilling personal goals, progressing in the labour market or participating more widely in society.

When measuring student reading literacy skills at age 15, how can one know the benefits that proficiency will bring in later life? An indirect but powerful piece of evidence comes from the International Adult Literacy Survey (IALS), which in the mid-1990s assessed adults aged 16-65 in a similar range of reading literacy skills. This survey classified adults at five levels of reading literacy and found that:

- Adults at the two lowest reading literacy levels were typically twice as likely to be unemployed as those at the three highest levels;
- Three-quarters of adults with the lowest level of reading literacy were either in relatively low-paying jobs (in the bottom 40% of earners) or not working;
- Adults with the lowest level of reading literacy were less than a quarter as likely to participate in continuing education and training as those at the top two levels.

Students who enter adult life with low reading literacy skills therefore not only have poorer chances in the labour market but also are less likely than the OECD average to upgrade these skills, leading to a widening divide. Although the adult literacy survey was constructed differently from PISA, there was an overlap in the items used, and from this it is possible to estimate 15-year-olds' results in terms of IALS scores. Extrapolating from the relationships between literacy skills and social and economic outcomes observed by IALS in the adult population, to the student population assessed by PISA, provides some insights into possible future consequences of low literacy performance at age 15. The results suggest that those with the lowest PISA scores are at risk in adulthood, facing increased chances of unemployment, reduced prospects of having a well-paid job and a limited likelihood of engaging in future learning.

The findings: student performance and beyond

The PISA results presented below give countries valuable information about how well their students perform in reading literacy. PISA identifies where there are particular problems of under-achievement, how wide inequalities in student performance within each country are, and in some cases particular aspects of reading literacy and particular types of text that students handle better than others.

However, this is only the start of the story. PISA also allows one to look at the characteristics of students who do well and to relate the results to what happens in education. Some important factors such as students' home background are hard to influence. Others, such as the way in which schools are organised, are more amenable to change. One crucial factor that education systems can work on is the degree to which students are active and well motivated readers. This report shows that the degree to which students are engaged in reading is a crucial factor associated with reading proficiency.

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HOW PISA MEASURES READING LITERACY

Reading literacy is no longer considered to be simply the ability to read and write, acquired in childhood as a single well-defined skill. Today, it is viewed as an advancing set of knowledge, skills and strategies, which individuals develop and build on throughout life, through experience and not just formal education.

A broad measure ...

According to the agreed PISA definition,

Reading literacy is understanding, using and reflecting on written texts, in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society.

...covers different dimensions of reading literacy...

This dynamic interpretation of reading literacy emphasises the interaction between reading skills and their application. To assess student literacies according to this definition, it is important to vary the reading situations, the forms of text and the kinds of question on which students are tested. Texts and tasks therefore varied according to these different dimensions in PISA 2000. For example, their subject matter ranged from fiction or letters that might be used for private reading purposes, to other kinds of text that students may encounter in a work context, in informing themselves about the world or in educational contexts. The form of text varied from continuous prose organised in sentences or paragraphs, to other, "non-continuous" written materials such as forms or tables. Finally, the tasks presented to students represent different aspects of the ways in which people use written information. Some tasks required students to retrieve information from one or more parts of a text, some required them to interpret specific phrases or show an understanding of the text overall, while others required them to reflect on the content of the text, relating it to their prior knowledge of the world.

...which allows a deeper analysis of students' strengths and weaknesses in reading literacy across countries.

These different dimensions of PISA reading tasks make it possible to go further than previous international surveys in examining students' reading abilities. The analysis presented below reports reading literacy on five separate "subscales", as well as reporting an overall reading literacy scale, which represents reading literacy performance across all aspects of reading. Three of the subscales break down reading by nature of task: retrieving, interpreting and reflecting/ evaluating. Two break it down by the form of text: continuous (prose) and non-continuous forms. In this way, countries can see more specifically where their students' relative strengths and weaknesses lie.

Reporting results:

Tasks are assigned point scores according to their difficulty...

In reporting on students' reading literacy skills, PISA describes a continuous gradation of performance in reading literacy, rather than specifying a particular cut-off point between the "literate" and the "illiterate". It does so by creating scales representing reading tasks of ascending difficulty. Each of the 141 reading tasks used in PISA has an associated reading literacy score. A student's reading literacy performance can be expressed as a score on each scale (the five subscales described above and the overall reading literacy scale). This represents the kind of task that the student is likely to perform successfully six times out of ten (see note opposite).

The overall reading literacy scale was constructed to make the average score of all students in OECD countries equal to 500, and to put the middle two-thirds of students within 100 points of the OECD average – between 400 and 600 points. A student scoring below 400 is roughly in the bottom one-sixth of students in OECD countries, and someone scoring above 600 is in the top one-sixth.

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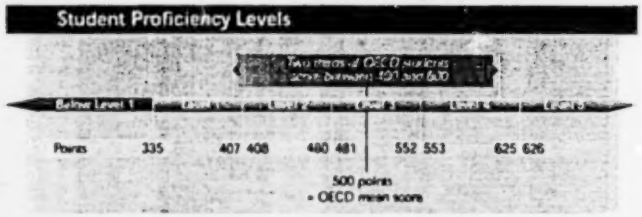
For examples of tasks and their associated proficiency levels, see pages 8-10



... which are used to divide students' proficiency into five levels.

To give more meaning to these results, students' proficiency is classified in five different levels, according to their point score. The diagram above shows how the levels are defined.

Students able to complete many of the most difficult PISA tasks are classified at Level 5. Note that all tasks above 625 points are "Level 5" tasks – no upper limit has been defined. Students are classified as reaching Level 1 if they can be expected to complete at least half of all tasks between 335 points and 407 points. These are the simplest reading tasks that were assessed in the PISA framework – demonstrating some capacity to construct, expand and reflect on the meaning of texts. Students who do not reach this level may still be able to read in a technical sense, but have serious difficulties in using reading literacy in practice.

Note on scores and proficiency levels:

Students' proficiency scores are based on the most difficult type of task that they can be *predicted* to perform correctly most of the time, given their performance on the PISA test.

More precisely, to be classified at, say, Level 2, a student must have *at least a 50% chance* of correctly completing a "Level 2" task, i.e. one associated with a proficiency score between 408 and 480 points.

For this to be true of the weakest "Level 2" student, at 408 points, their chance of completing a task rated as 408 must be considerably better than 50-50 – since they will be much less likely to get a harder Level 2 item correct. In fact, the probability of getting the 408-point question right must be at least 62%. Therefore, all point scores are assigned according to the point rating of the task that the student can be predicted, with 62% certainty, to complete correctly.

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STUDENT PERFORMANCE IN READING LITERACY OVERALL

The PISA results show important variations in the reading literacy abilities of 15-year-olds, both between and within countries.

Differences between countries

As shown in the first column of the table, the mean student score in the 32 countries in PISA 2000* varies by 150 points on the overall reading literacy scale. In Finland, students are on average near the top of Level 3, in Brazil near the top of Level 1: a huge gap. Most of the 28 OECD member countries participating* have mean scores within Level 3, but six are in Level 2: Greece, Hungary, Luxembourg, Mexico, Poland and Portugal.

Note also, however, that some of the countries around the middle of the distribution have very similar mean scores, and it is not always possible to say with confidence, on the basis of the sample, which of two countries has students who perform better. The last two columns of the table therefore give a range of possible positions of each country, relative to the others in the survey.

Mean Student Score by Country

Country	Mean student reading literacy performance (estimated)	Range of rank order positions for each country based on sample (with 95% confidence)	
		Highest possible	Lowest possible
Finland	546	1	1
Canada	534	2	4
New Zealand	529	2	8
Australia	528	2	9
Ireland	527	3	9
Korea	525	4	9
United Kingdom	523	5	9
Japan	522	3	10
Sweden	516	9	11
Austria	507	11	16
Belgium	507	11	16
Iceland	507	11	15
Norway	505	11	16
France	505	11	16
United States	504	10	20
Denmark	497	16	19
Switzerland	494	16	21
Spain	493	17	21
Czech Rep.	492	17	21
Italy	487	19	24
Germany	484	21	25
Liechtenstein	483	20	26
Hungary	480	21	26
Poland	479	21	27
Greece	474	23	28
Portugal	470	24	28
Russian Fed.	462	27	29
Latvia	458	27	29
Luxembourg	441	30	30
Mexico	422	31	31
Brazil	396	32	32

* Note that even though the ranking estimates shown here relate to the 32 countries participating, student performance in the Netherlands cannot be determined with sufficient reliability for a mean score to be reported. Averages are therefore shown only for 31 countries, 27 of them OECD members.

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Differences within countries

Within each country, there are some exceptionally good readers and some exceptionally poor ones. Every country has some students failing even to reach Level 1 and others showing advanced reading literacy skills, at Level 5, although in both cases this can be as few as 1% of all students in a country.

The performance of students within a country can therefore be looked at both in terms of the numbers of students who have the highest level of proficiency and the number who do not manage to progress beyond the lowest levels:

- In three countries, Australia, Finland and New Zealand, at least 18% of students are at Level 5 – twice the OECD average.
- In three countries, Brazil, Luxembourg and Mexico, at least one in three have not progressed beyond Level 1, compared to just over one in six across OECD countries.

Some interesting contrasts between patterns of performance in different countries are shown in the box.

Overall, PISA shows that it is possible to contain inequalities in student performance within countries, and that this does not have to come at the expense of overall standards. Three of the five countries where variation in student performance is the smallest, Finland, Japan and Korea, also have mean scores statistically significantly above the OECD average.

Differences in patterns of performance: some contrasts

Finland, Korea and New Zealand all have mean reading literacy scores well above the OECD average. But their students' results are very differently distributed across the levels.

Korean students have the most compact distribution, with seven in ten students in Levels 3 or 4. Only 6% of Koreans show very low reading literacy skills (below Level 2) and only 6% very high reading literacy skills (at Level 5).

Most Finnish students are also at Levels 3 and 4 (61%), but there are also many students (18%) at Level 5. Thus Finland manages to combine compact with high performance better than any other country.

In contrast, New Zealand's students are more widely spread over the whole distribution. More are at Level 5 (19%) than in any other country, but also more below Level 2 (14%) than in most other countries that perform above the OECD average. Thus, one in three students in New Zealand has either very advanced or very limited reading literacy skills, compared to only one in eight Koreans.

Germany and Italy both have similar mean scores, somewhat below the OECD average. However, Germany has the widest internal variation in performance, whereas Italy is among the countries with the narrowest differences.

Although the best performing tenth of German 15-year-olds are nearly all on Level 5 the lowest scoring tenth do not even reach Level 1. In only three other OECD countries do the bottom 10% lack any reading literacy proficiency recognised by PISA. One of these, **Mexico** is, by contrast with Germany, a low-scoring country with a compact distribution. Only 7% of Mexicans, compared to 28% of Germans, reach Levels 4 and 5.

Conversely, the pattern in Germany can be contrasted with that of **Austria**, whose students perform above the OECD average. Both countries have 9% on Level 5, but Germany has 23% below Level 2, compared to Austria's 15%.

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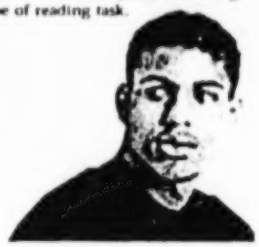
ASPECTS OF READING

Students will need to be able to perform different kinds of reading task in their adult lives. They will have to be able to locate information, to interpret what they read and to reflect more widely on its meaning. The following three pages show examples of texts included in PISA, and how they were used to assess these different aspects of reading literacy. They also report on the results for students in the performance of each type of reading task.



How good are students at retrieving information?...

How retrieving information is assessed in PISA

In daily life, readers may need to find information, ranging from the departure time for a bus to facts in an article to support or refute a claim someone has made.

Easier PISA tasks typically require students to find a single piece of explicitly stated information, often using the same words as in the text. For example, they were asked, after reading the *Running Shoes* example below: "According to the article, why should sports shoes not be too rigid?" A correct answer, identifying that this restricts movement, involved matching a single word in the question with the same word in the text, and to repeat a short phrase stated there. It is classified as Level 1 on the retrieving scale.

As retrieving tasks get harder, they may introduce more and competing information and greater ambiguity, and require students to match more than one piece of information in different parts of the text. In the Labour Force Structure unit, opposite (an example of a text presented as a diagram rather than a "continuous" text), students were asked: "How many people of working age were not in the labour force (write down the number of people, not the percentage)". Students identifying the correct answer of 949,900 got full credit on this question, associated with proficiency Level 5. One difficulty here is associated with the fact that students have to refer not just to the text but also to the footnotes to know that the number is in thousands. However even students who did not notice the footnote and gave the answer 949.9 were given partial credit, at Level 3, since even without this requirement the task is still of moderate difficulty.

"Feel good in your runners"-
(extract from a PISA reading text)

For 14 years the Sports Medicine Centre of Lyon (France) has been studying the injuries of young sports players and sports professionals. The study has established that the best course is prevention ... and good shoes.

Knocks, falls, wear and tear...

Eighteen per cent of sports players aged 8 to 12 already have heel injuries. The cartilage of a footballer's ankle does not respond well to shocks, and 25% of professionals have discovered for themselves that it is an especially weak point. The cartilage of the delicate knee joint can also be irreparably damaged and if care is not taken right from childhood (10-12 years of age), this can cause premature osteoarthritis...

Protect, support, stabilise, absorb

If a shoe is too rigid, it restricts movement. If it is too flexible, it increases the risk of injuries and sprains. A good sports shoe should meet four criteria:

Firstly, it must provide exterior protection: resisting knocks from the ball or another player, coping with unevenness in the ground, and keeping the foot warm and dry even when it is freezing cold and raining.

It must support the foot, and in particular the ankle joint, to avoid sprains, swelling and other problems, which may even affect the knee.

It must also provide players with good stability so that they do not slip on a wet ground or skid on a surface that is too dry.

Finally, it must absorb shocks, especially those suffered by volleyball and basketball players who are constantly jumping ...

Retrieving information: results

- Although most countries have similar mean scores on the retrieving information scale as for other aspects of reading literacy, some show important differences. Students in Australia and New Zealand do particularly well on the retrieving information scale, exceeded only by Finnish students. France is above the OECD average, unlike on the other aspects. In contrast, in several countries with lower average scores, students perform particularly poorly in retrieving information: Brazilian, Mexican and Greek students score, on average over half a proficiency level lower on the retrieving information scale than on the reflecting and evaluation scale. In Brazil and Mexico the average student is only proficient at Level 1 tasks – locating explicitly stated information with little or no competing information in the text.

- The overall pattern of results for retrieving information is similar to that for reading literacy as a whole. However, a greater proportion of students show weak reading literacy skills – below Level 2 – in this aspect of reading than in other aspects. Overall, 20% of students are not proficient at Level 2, and in 18 out of 31 countries the proportion is higher than this.

- In other words, in about half of OECD countries, at least one in five 15-year-olds cannot reliably perform basic reading tasks requiring them to locate information in a text where the task may require them to meet multiple criteria and deal with competing information. In four OECD countries, Greece, Luxembourg, Mexico and Portugal, over 30% of students cannot perform such tasks.

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...How good are students at interpreting texts?...

How PISA assesses students' skills in interpreting texts

To make use of a text, readers may need to form a broad understanding of its purpose and meaning, and also to interpret more specific aspects of what they have read. Interpreting in PISA refers to both these aspects.

The simplest interpreting tasks in PISA typically require students to recognise the main theme or author's purpose in a text on a familiar topic. For example, for the Running Shoes text shown opposite, they were asked: "What does the author intend to show in this text?" From four options, they had to select "That it is very important for young sports players to wear good sports shoes". This was one of the easiest Level 1 tasks, since the required information is stated in the introduction and repeated several times in the text.

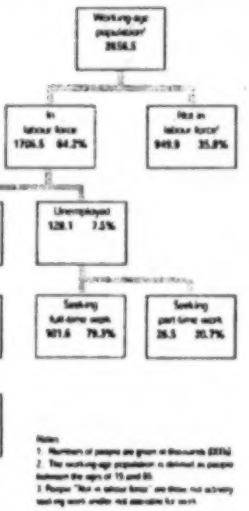
Interpreting tasks of medium difficulty may require students to construe meaning in specific parts of the text, or integrate several parts of a text in order to identify a main idea. The hardest tasks may require students to make higher levels of inference to understand texts, to construe meaning from nuanced language or to demonstrate a full and detailed understanding. For example, on the Labour Force Structure unit, students were given examples of individuals (e.g. "a full-time student, aged 21"), and asked where they would be included in the table. The examples were constructed to test whether the student understood fully and in detail the definitions provided by the diagram. Identifying all categories correctly was associated with a Level 5 score; getting some right had an associated score at the upper end of Level 2.

Labour force

(example of a PISA reading text)

The Labour Force Structure year ended 31 March 1995 (000s)

The tree diagram shows the structure of a country's labour force or "working-age population". The total population of the country in 1995 was about 3.4 million.



Notes

1. Numbers of people are given in thousands (000s).
2. The working-age population is defined as people between the ages of 15 and 65.
3. People "Not in labour force" are those not actively seeking work and/or not available for work.

Source: D. Miller, Form 8 Economics, ESA Publications, Box 3413, Wellington, New Zealand NZ, p 64.

Interpreting texts: results

- Most countries have similar mean scores on the interpreting scale as for other aspects of reading literacy. However, students in some countries do relatively better on the interpreting texts scale – notably in Iceland, Luxembourg and the Russian Federation.

- Within countries, a somewhat greater proportion of students tend to have medium levels of proficiency in interpreting texts than in other aspects of reading literacy, with a smaller proportion at the extremes. For example, only 6% are below PISA Level 1 in interpreting, compared to 8% for retrieving information; 9% and 11% respectively perform at Level 5.

- The number of countries with over 20% of students below Level 2 is smaller for interpreting than for other aspects of reading literacy - only 8 out of 27 OECD countries reporting results, compared to 14 for retrieving information. Conversely in one country with a high mean score, Japan, only 8% of students are able to demonstrate a full and detailed understanding of texts (Level 5), only half the proportion who perform at Level 5 in the other two aspects.

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...How good are students at reflecting and evaluating?...

How PISA assesses reflection and evaluation

Going beyond understanding what a text means and finding information within it, good readers must be able to reflect on and evaluate its content, connecting it to prior knowledge, assessing the claims made, and reflecting on its form to evaluate how successful the author has been. These kinds of task are scored in PISA on a reflection and evaluation scale.

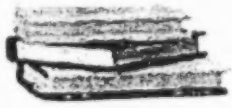
Easier reflective tasks require students to make connections between information in the text and common, everyday knowledge or one's personal experience and attitudes. For example on the basis of a short adventure story (not shown here), they had to comment on two views about what a person's behaviour showed about her character. If, drawing on their own values, they can defend the perspective that she was either compassionate or cruel, they get credit at Level 2. If they have the perspective to defend both points of view, they get credit at Level 3.

More difficult tasks on this scale may require students to evaluate a text critically, to hypothesise and to deal with concepts that are contrary to expectations. In the case of the two letters on *graffiti* shown below, they were invited to reflect on the form of the text by being asked:

"... Regardless of which letter you agree with, in your opinion, which do you think is the better letter. Explain your answer by referring to the way one or both letters are written."

A correct response, which referred to form and style rather than whether the student agreed or disagreed, was given credit at Level 4. Students must draw on their own understanding of what constitutes good writing.

Reflection and evaluation: results



- Most countries have similar mean scores on the reflection and evaluation scale as for other aspects of reading literacy. However, in some of the lowest scoring countries overall, notably Brazil, Mexico and Greece, students do considerably better on the reflecting and evaluation scale than in the other scales. At the other extreme Finnish students, who were the best readers overall, do relatively less well on the reflection and evaluation scale: students in four other countries (Canada, Ireland, Japan and the United Kingdom) do as well as Finnish ones on this scale, whereas none do on the other scales.
- Within countries, the overall variation in scores on the reflection and evaluation scale is less than for retrieving information but more than for interpreting. However, the largest single variation within a country on any scale is for Germany in reflecting. Here, the middle 80% of the population is spread over nearly 4½ proficiency levels, with the bottom 10% well below Level 1 and the top 10% all proficient at Level 5. More than one in eight German students cannot perform the simplest PISA reflective tasks, a greater proportion than in all but two other OECD countries.
- On average, slightly more students have highly advanced proficiency (Level 5) on the reflection and evaluation scale (11%) than for all reading tasks (9%). In the United Kingdom and Canada, nearly 1 in 5 students perform at this level. In Finland, in contrast, where a quarter of students are at Level 5 on the other two scales, only one in seven are at this level in reflection and evaluation.

Graffiti (extract from a PISA reading test) *The following two letters were published on the Internet*

I'm simmering with anger as the school wall is cleaned and repainted for the fourth time to get rid of graffiti. Creativity is admirable but people should find ways to express themselves that do not inflict extra costs upon society.

Why do you spoil the reputation of young people by painting graffiti where it is forbidden? Professional artists do not hang their paintings in the streets, do they? Instead they seek funding and gain fame through legal exhibitions.

In my opinion buildings, fences and park benches are works of art in themselves. It's really pathetic to spoil this architecture with graffiti and what's more, the method destroys the ozone layer. Really, I can't understand why these criminal artists bother as their "artistic works" are just removed from days over and over again.

Helga

There is no accounting for taste. Society is full of communication and advertising. Company logos, shop names. Large intrusive posters on the streets. Are they acceptable? Yes, mostly. Is graffiti acceptable? Some people say yes, some say no.

Who pays the price for graffiti? Who is actually paying the price for advertisements? Correct. The consumer.

Have the people who put up billboards asked your permission? No. Should graffiti painters do so then? Isn't it all just a question of communication - your own name, the names of gangs and large works of art in the street?

Think about the striped and chequered clothes that appeared in the stores a few years ago. And ski wear. The patterns and colours are stolen directly from the flowery concrete walls. It's quite amusing that these patterns and colours are accepted and admired but that graffiti in the same style is considered dreadful. Times are hard for art.

Sophia

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...How good are students at reading different kinds of text?...

PISA presented students with a wide variety of reading materials, of which one third were "non-continuous" text types – i.e. not prose laid out in sentences and paragraphs. Traditionally, the teaching of reading has been mostly associated with prose forms, but it is also important to ensure, for example, that students are able to read and interpret maps, tables and diagrams. Beyond school, there is a need to understand a wide range of materials ranging from tax forms to transport timetables.

In half of the countries, students showed reading literacy levels at least as high on average when reading non-continuous as continuous texts. In France, students perform significantly above the OECD average on non-continuous, but only around the OECD average level for prose materials. On the other hand, a number of countries with overall lower performance (Brazil, Greece, Italy, Latvia, Mexico and the Russian Federation) as well as one strongly performing country, Korea, do statistically significantly worse on non-continuous texts.

A more consistent difference in results across types of reading material is that the range of scores tends to be wider for non-continuous tasks. In all but five countries, the middle 80% of students span a wider score range than for continuous ones. In Hungary, for example, despite a similar mean score on both scales, this range is nearly 20% wider in score points for non-continuous tasks. Such differences raise a particular issue about whether weaker students are falling behind in their understanding of graphs, diagrams and other non-prose written forms – and whether they need more specific help with these skills.

What do these breakdowns by type of reading literacy skill reveal?

The last four pages have noted where there are important differences within countries in how well students perform in different aspects of reading literacy and in coping with different kinds of text.

Of the three aspects, it is in retrieving information that the scores of students are most dispersed overall. Some of the countries in which student performance is lower overall have particularly high concentrations of students on Level 1 or below on this scale, indicating that they are unable to find the information they need in all but the most basic reading situations. This is true of over one in four students in six OECD countries - Greece, Hungary, Luxembourg, Mexico, Poland, Portugal. However, in some other countries dispersion in scores and student under-achievement are greatest in other aspects of reading literacy – such as Germany on reflection and evaluation, where 27% are at Level 1 or below.

In the case of different types of text, the differences in distribution are even clearer: in general, there is a wider range of performance in understanding non-continuous texts like graphs and forms than continuous prose.

These results can help countries identify where their weaker students are most seriously falling short, and need extra help. Of particular importance are cases where there is much greater dispersion of results in some aspects of reading literacy than others within an individual country. The most prominent case is Mexico, which had one of the narrowest spread of results for interpreting but one of the widest for reflecting and evaluating.

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STUDENT ENGAGEMENT (1)

Are 15-year-olds "engaged" as readers?

Students who read well tend to be active readers. They gain in terms of both motivation and experience from reading regularly outside the context of schoolwork. PISA provides valuable evidence both on the ways in which reading habits are associated with reading literacy proficiency and on the characteristics of students who are active readers. The results show how important it is not just to teach students to read but to engage them in reading as part of their lives.

PISA asked students three kinds of question about their reading habits and their attitudes to reading. First, it asked how much time they usually spend reading for enjoyment each day. Second, it asked about the frequency with which they read various types of material, such as newspapers, emails and novels, ranging from "never" to "several times a week". Third, PISA asked students about their attitudes about reading, such as whether they think it is fun and would not like to give it up.

All these factors taken together summarise how "engaged" a student is in reading.

The colour-coding in the graph on the facing page shows the strength of the within-country relationship between engagement in reading and reading literacy performance. In most countries, there is a strong or at least moderate relationship between engagement and performance. In all countries there is some correlation: its strength is between 0.24 and 0.48 in every OECD country. (A correlation of 1.0 would mean that all students' reading literacy scores could be exactly predicted from their engagement levels; a correlation of 0 would signify no link.) Interestingly, PISA identified stronger links between engagement and performance in countries where mean performance is higher. Thus for example the link is particularly high in Finland and in other Nordic countries, and weakest in countries such as Mexico, Brazil and the Russian Federation.

However, the relationship is less obvious when comparing average levels of engagement in countries and average performance. While Finland, where reading performance is highest, also shows the most positive reading attitudes and habits, Belgium has above-average reading literacy but the lowest level of engagement.

Engagement and reading literacy performance – cause or effect?

Note that PISA shows that strong engagement in reading is associated with high levels of reading literacy, not that it causes them. It is also possible that students who are better at reading therefore read more, or that some other factor helps cause both things. In fact, research evidence points to the conclusion that the two go hand in hand. Students with poor reading habits often find reading material too difficult, fail to form strong reading habits, and therefore have fewer opportunities to develop reading comprehension strategies. Therefore effective reading instruction programmes need to take account of both cognitive and motivational components of reading

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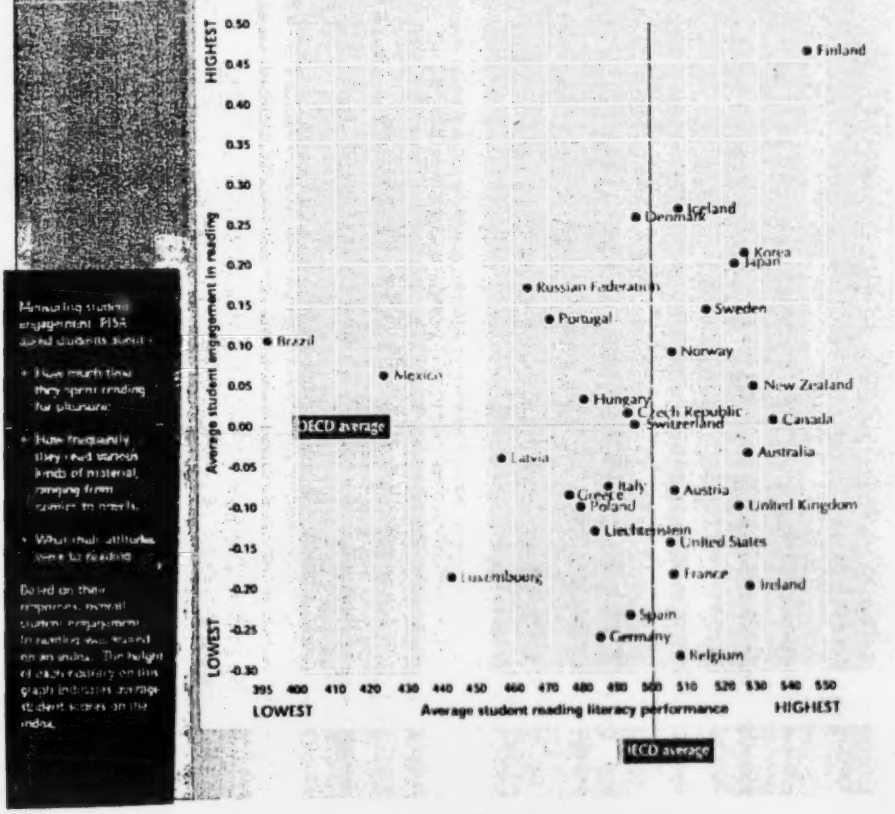
To read this graph, please note:

The ***position*** of each country shows ***average*** engagement and reading literacy performance of its students.

The ***colour*** of each country indicates how strong is the relationship between student engagement and performance among students ***within*** the country. Purple indicates the strongest relationship (correlation >0.4), dark blue is medium and light blue the least strong (correlation >0.3).

Are students engaged in reading? Are they good readers?



Measuring student engagement: PISA asked students about:

- How much time they spent reading for pleasure;
- How frequently they read various kinds of material, ranging from comics to novels;
- What their attitudes were to reading.

Based on their responses, overall student engagement in reading was scored on an index. The height of each country on this graph indicates average student scores on the index.

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STUDENT ENGAGEMENT (2)

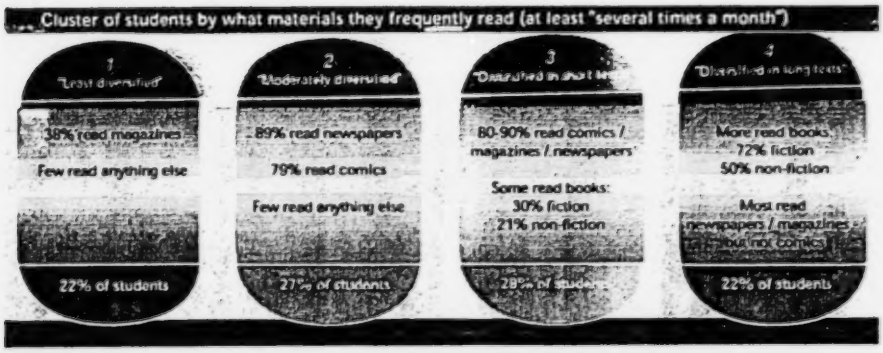
A profile of student reading habits

As well as looking at student engagement overall, PISA was able to examine which particular reading characteristics are most closely associated with strong reading literacy performance. Looking specifically at how frequently students read various types of material, it is possible to divide them into four roughly equal groups or "clusters", with similar characteristics in terms of the diversity and frequency of their reading habits. These are shown on the graph below.

Of the quarter of students with the least diversified reading habits, most read nothing frequently, though some read magazines. A second category with moderate reading habits consists of students most of whom read newspapers and magazines, but not books. Students in a third group read more diversely, though mainly from short texts, particularly comics, although a substantial minority read books too. Among those reading most diversely, including longer texts (the fourth group) most read books (but fiction more often than non-fiction) as well as newspapers and magazines, but not comics.

The graph opposite shows that the proportion of readers in this fourth category varies from almost none in Japan, to over a third in Australia, the United Kingdom and New Zealand. Countries with the greatest number of students in the third and fourth categories mostly perform above the OECD average in reading literacy. Students in some countries such as Japan and Finland read well on average even though relatively few have the most diversified reading habits. However, note that nearly 80% of students in these two countries are at least classed as diversified readers with respect to short texts. This seems to reflect different cultural tendencies in different countries, with most of the wider readers in Finland and Japan reading magazines, newspapers and comics rather than books. But in these countries the small minority who read books are especially good readers, with the most diversified readers performing on average at Level 4.

Across the OECD, the most diversified readers perform on average near the top of Level 3 while the least diversified readers have a mean score near the top of Level 2. In virtually all countries students in successively more diversified clusters are better at reading. Not every student who reports reading frequently is a good reader, but reading habits are particularly



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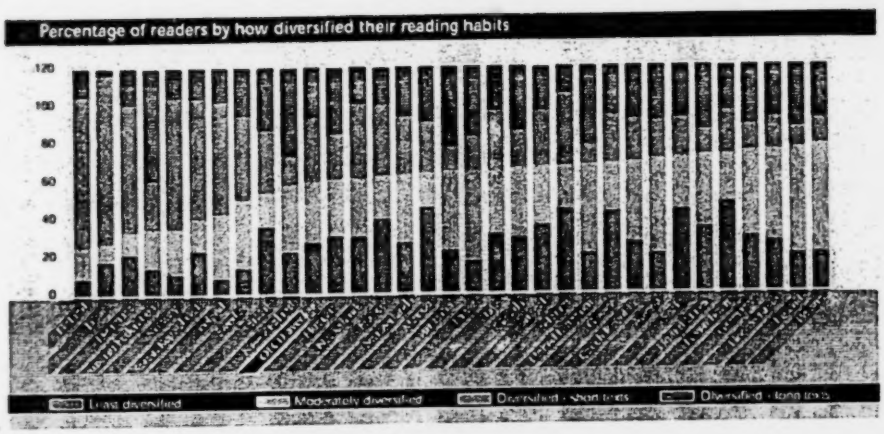
strongly associated with reading literacy performance at the extremes. Nearly half of all students who are the most diverse readers scored at Level 4 or 5, compared to fewer than one in five of the students who read least. At the other extreme, someone in the least diversified category has a one in ten chance of having very poor reading literacy skills (below PISA Level 1) compared to only a one in 23 chance for moderately diversified readers, falling to one in 36 for the most diversified category.



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STUDENT ENGAGEMENT (3)

Which students are the most engaged readers?

In developing new approaches to the engagement of students in reading, schools need to know about the reading habits of different students. PISA contains some important findings about differences by gender and by home background. The following looks at characteristics relative to engagement as defined on page 12 above.

Girls are on average more engaged than boys, but reading habits by gender also differ in character.

In all countries, girls are more engaged in reading than boys at age 15: they read more, and feel more positive about reading. This gap, possibly associated partly with peer norms, suggests that boys should be the focus of any initiative to engage teenagers more closely in reading. Some encouragement can be taken from the fact that boys in some countries (e.g. Denmark, Finland, Japan and Korea) are at least as engaged as girls in others (e.g. Belgium, Spain and France).

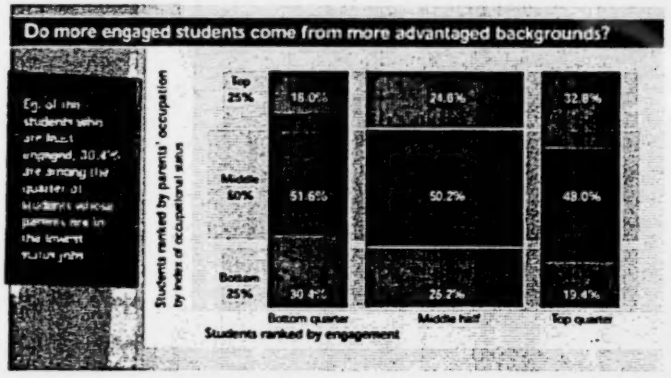
Looking at what girls and boys read, it is not just that girls read more but that they read different things. Similar proportions of boys and girls read little at all. More important is the fact that among more prolific readers, girls are more oriented to reading books and boys to reading comics, in conjunction with newspapers and magazines. Schools have tended to value book reading most, but should note that the gap in reading literacy performance between these two categories of readers (categories 3 and 4 on page 15) is not huge. In some cultural contexts, encouraging boys in their preferred reading habits may be the most fruitful route to improving reading literacy performance.

Students from more advantaged backgrounds are more engaged on average, but social background does not entirely determine engagement...

Students whose parents have advantages such as a high level of education and a high status job on average perform better at school, including in reading. To what extent is the link between students' engagement in reading and performance linked to their home background? The graph below shows that students whose parents are in better jobs, measured on an international index of occupational status, are also more likely to have positive reading attitudes and habits. Yet this advantage is far from decisive. For example, among the students whose parents have the lowest-status jobs, nearly one in five (19%) are among the quarter of students showing the highest engagement in reading – only six percentage points lower than if engagement were randomly distributed among students from different backgrounds.

...and indeed, being a keen reader may compensate for having a less advantaged background in predicting reading literacy performance.

Now consider the performance of those one in five students from less



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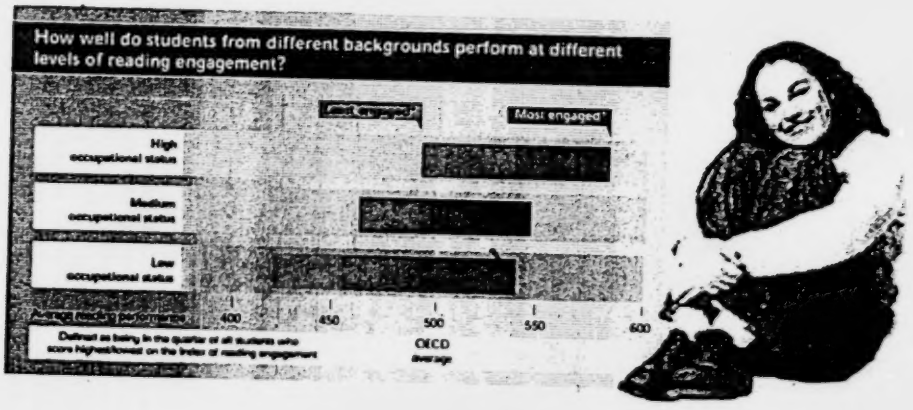
advantaged backgrounds who are nevertheless highly engaged in reading. Their average score across OECD countries is 540, nearly as high as for all students in the best performing country, Finland. As shown on the next graph, this contrasts strongly with students who have home advantages but are not engaged in reading – their scores are below the OECD average. Thus it is more advantageous to be engaged but from a less privileged social background than to be privileged but less engaged. This is a key finding, indicating that engaging disadvantaged students is likely to be central to improving their reading literacy performance.

Having books at home is strongly associated with reading engagement.

Not surprisingly, students who live in homes where they have access to books are more likely to read a wide variety of printed materials, including fiction and non-fiction books. More broadly, having diverse reading material at home is strongly associated with high overall reading engagement, which includes positive attitudes to reading. Engagement is also strongly associated with student participation in cultural activities and family communication on cultural matters. These associations are about twice as strong as between engagement and parental education or occupational status. Thus the most important set of home disadvantages for schools to overcome in getting students to develop positive reading habits and attitudes are not socio-economic but cultural in character.



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STUDENT ENGAGEMENT (4)

A summary of country characteristics

The diagram summarises for each country the extent to which students are engaged in reading and how this relates to their performance. The number shown for each country is the rank out of 31 countries, with higher ranking countries coloured in darker tones.

The first three columns rank countries in terms of the overall level of student engagement, how closely this is related to performance within each country, and how well students read overall. Although there is no systematic relationship between these three columns, some interesting patterns can be seen. Russian students, for example, are relatively highly engaged, but engagement makes relatively little difference to performance within the country, and Russian students had lower reading literacy on average than students in most OECD countries. On the other hand in Finland, high overall engagement seems to make a difference, with the strongest internal differences in performance between more and less engaged readers, and the highest performance overall in international terms.

The last two columns look at the gap between boys and girls, both in terms of reading engagement and in terms of reading performance. Having a small gap is shown in terms of a high rank showing that the gender gap is contained. Of course in some countries with good performance overall but wider gender gaps, boys do better than in countries with smaller gender gaps but low overall student performance.

In some countries where boys are much less engaged than girls, they also have much lower reading scores (eg Finland, Norway), and with others having small differences on both (eg Korea, Mexico). However, relatively small gender differences in engagement can co-exist with wide differences in performance (eg New Zealand), and vice versa (eg Brazil).

Reading engagement and reading performance

Rank out of 31 shown as a number in a horizontal panel. Higher ranks are shown in darker coloured cells.	Overall student engagement and performance			Gender gap (smaller gap = higher rank	
	How engaged are students in reading - in terms of attitudes and reading habits?	How much difference does engagement make to reading performance?	How well do students perform in reading?	How engaged are boys relative to girls?	How well do boys read relative to girls?
OECD members					
	17				19
	20			24	
	31	17		17	18
	15			22	17
	24		19	29	24
			16	23	
				31	30
	26	20			
	30		21	28	20
	21	28	25		23
			23		16
				15	27
	28			20	
	19	24	20		25
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	27	29	29		
		30	30		
					29
				25	28
	22	26	24		21
		22	26	21	
	29				
				19	22
				30	
	23				
	25	23			
Non-OECD members					
		27	31	27	
	18	25	28		31
	24		22	24	
		31	27		26

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Policy implications

These results show unequivocally that improvement in reading literacy performance relies not just on improving student cognitive skills but also on increasing their engagement in reading. Students who have better educated parents in better jobs, and who have books and other resources in their homes, have more chances of coming to school more engaged in reading, and of entering into a virtuous circle of increasing reading interest and improving reading performance. Yet not all of engaged readers come from privileged homes, and those from more modest backgrounds who read regularly and feel positive about it are better readers than people with home advantages but weaker reading engagement.

This strongly suggests that there is much that schools can do to bring students into this virtuous circle, regardless of their home background. Since cognitive skills and reading motivation are mutually reinforcing in this process, rather than being alternatives, schools need to address both simultaneously. Just as it can be ineffective to give didactic instruction in reading strategies to a class of students who have little interest, so it is misguided to set reading tasks that attract the interest of young people but do nothing to improve their cognitive skills. The emergence at relatively early ages of, for example, gender differences in reading indicate that the task of engaging students needs to start early on in education and continue through secondary school.

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20 STUDENT CHARACTERISTICS AND READING LITERACY PROFICIENCY

PISA gathered a wide range of information about the students and schools taking part in PISA. This makes it possible to identify characteristics associated with students who read well. Some of these features (such as gender) are fixed, others (such as school policies and practices) are amenable to change. In interpreting the findings as a whole, policy makers need to take note of various differences associated with individual students, of the role of characteristics of students as a whole within the school, and of how a range of these characteristics interact with each other.

PISA results can be summarised in terms of students' own characteristics, those of their families and the environment in which they learn.

Students' own characteristics

One of the strongest characteristics associated with higher or lower performance is **gender**. Girls are consistently ahead of boys in reading literacy, with the difference between mean scores ranging from 14 points in Korea to 51 points in Finland. Boys are 70% more likely than girls to read at a low level, below Level 2. This implies that any strategy to combat under-achievement in this age-range needs to focus particularly on boys. But note also that these differences vary by different aspects of reading literacy. In particular, boys are less far behind on average in retrieving information (25 points on average) but much further behind in reflection and evaluation (43 points). They are also only 17 points behind when dealing with non-continuous texts, but 39 points when reading prose documents.

These differences seem to reflect differences in **reading engagement** between boys and girls reviewed earlier. Girls are more engaged than boys, so it is not surprising that they are also better readers on average. But in addition, girls tend to read more books, especially novels, with boys reading various other written forms. This seems compatible with the finding that boys are particularly behind at reflecting and reading prose, but less so when it comes to finding information that they need, especially from within texts such as graphs and diagrams.

The advantage of being engaged as a reader stands out among the student characteristics associated with reading literacy performance. Even when the independent effect of such engagement is distinguished from the effect of associated characteristics such as student background, the association is statistically significant, and more than twice as great, for example, as the independent effect of parental occupation.

Another characteristic that in some countries has an association with reading literacy performance is **time spent on homework**. This effect is largest in Belgium, France, Greece, Hungary, Poland and the United Kingdom, where doing more homework is associated with substantially higher reading literacy performance. In six other countries there is a moderate effect, but in others it is small or insignificant, and in some countries students who are less good readers do on average more homework. These differences appear to reflect differences in countries' homework policies, and shows that results and relationships must be interpreted at the country level.

Family characteristics

Families are an important source of social capital for students. Their various linguistic, cultural, and socio-economic backgrounds create the context of early experiences and are clearly associated with different levels of reading literacy performance by age 15.

PISA asked students about their home background, and measured the strength of association of various factors with reading literacy performance. The strongest single factor is **immigration**, with students whose parents were not born in the country scoring substantially lower than the country's mean score. Students are also on average better readers if their parents have a "better" **job** as scored on an index linking occupations to the education and skills that they require and to the income that they yield. The association between occupation and reading literacy performance is somewhat lower than for immigration. Two other important associations are with the number of **books in the home** and with other **educational resources**, such as access to one's own desk or a quiet place to study in the home.

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Of course, many of these factors overlap: people whose parents have better jobs, for example, are also more likely to live in homes with books. Looking at each factor's independent effect (for example, do differences in parental occupation make a difference to predicted reading literacy scores, among students who are similar in other respects?), each factor is shown to have a smaller influence; it is the cumulative influence of a series of home background factors that is large.

PISA also allowed comparisons of how much difference home background makes to student performance in different countries – an indication of the success or failure of school systems to overcome these differences. For example, the predicted difference in points between two students with parents in the bottom and top quarter of occupations, respectively, is around three times as great in Belgium, the Czech Republic, Germany, Hungary, Luxembourg, Portugal, Switzerland and the United Kingdom as in Korea.

The classroom environment

Not just their home environment but also the environment of the classroom may influence students as learners. PISA asked them about various aspects of their experiences in class, including:

- The degree to which teachers have **high expectations** for them to work hard and achieve. The association of this factor with reading literacy performance is everywhere small, and not consistent across countries. It is interesting to note that in some countries, notably Finland, Sweden and New Zealand, greater pressure is associated with worse reading literacy performance. The largest positive effects were observed in Brazil, Greece and Korea.

- **Disciplinary climate**, in terms of whether student behaviour could hamper learning. Students who were in classes that were disrupted in this way have lower mean reading literacy scores in all OECD countries. The effect is generally small, with the largest differences in Japan, Poland and the United Kingdom.

- **Relationships with teachers**. Where these are positive, one might expect students on average to be better readers, but this is not always true across countries. In eight countries there is a modest effect (correlation of 0.15 to 0.20), but in some countries no statistically significant link is detectable.

The identified effects of these classroom variables, while in some cases statistically significant, are not large. Even if the true effects are much larger, one would expect the observed effect in PISA to be modest, since students' performance is influenced by their education over many years whereas PISA captures their performance and experiences only at a single point in time and grade level.

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The challenges ahead

The PISA reading literacy results show that all countries face common challenges, in raising overall student reading literacy levels, in reducing disparities between the best and worst readers and in particular in reducing the number of students with limited reading literacy skills who are likely to face severe disadvantages in adulthood. Some countries have demonstrated that it is possible to contain disparities and limit under-achievement while maintaining a high overall level of reading literacy among the student population.

Achieving these improvements is clearly a complex task. PISA has highlighted the diverse nature of reading, with students having for example to perform many different kinds of task, in relation to different types of text. In some countries, students are stronger in certain aspects of reading literacy and dealing with certain types of text than in other countries. The greatest variations within countries - and some of the largest incidence of under-achievement - are seen in retrieving information and in using written materials that are not in prose form. These kinds of results challenge education systems to consider whether their curricula and pedagogical practices are sufficiently preparing students for the various challenges of adult life. For example, schools that concentrate on teaching students to understand narrative prose may leave a large number of students feeling lost when confronted with certain "non-continuous" reading materials such as tax forms or graphs.

The results show unequivocally that improvement in reading literacy performance relies not just on improving student cognitive skills but also on increasing their engagement in reading. Nor is this engagement completely determined by home background, and there is much that schools can do to make a difference. School systems need to think carefully about how they go about engaging children, in the knowledge that no improvement in didactic strategies is likely to work on an unenthusiastic audience. Without greater enthusiasm, weak students are unlikely to improve. Thus, measures to improve engagement cannot be seen as an add-on to curriculum reforms, but must be seen as central.

Finally, PISA shows that in addressing these challenges, schools have to be sensitive to different characteristics of different student groups. One of the most important distinctions among 15-year-olds identified in PISA is between girls and boys. Girls in general have better results, with a much lower incidence of under-achievement. These results relate very directly to the different reading habits and different attitudes to reading shown by girls and boys in their mid teens. They suggest that a strategy for addressing a culture among boys that is often hostile to the kind of reading that they encounter at school needs to be central to any initiatives that seek to remedy under-achievement.

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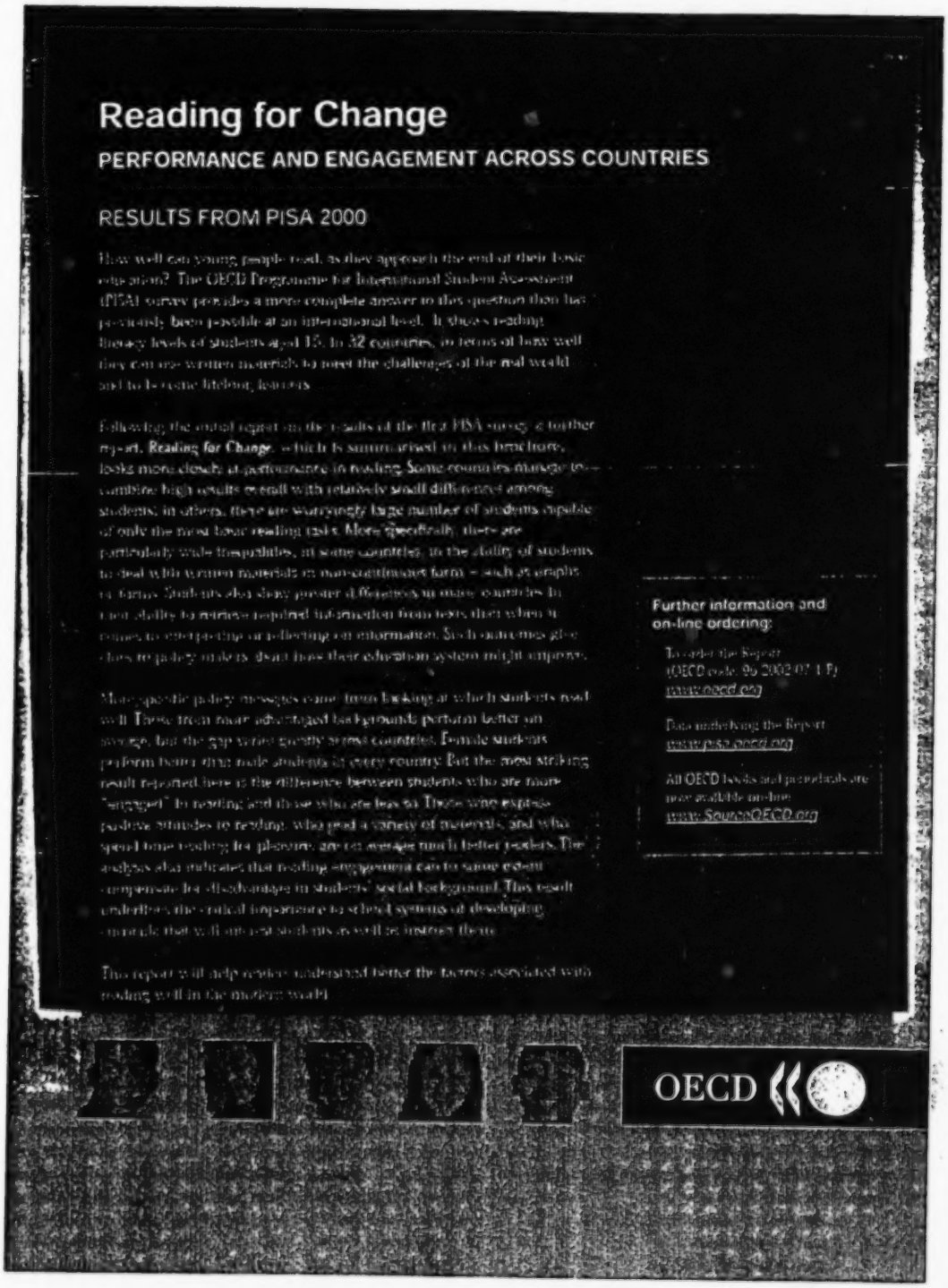
Reading for Change
PERFORMANCE AND ENGAGEMENT ACROSS COUNTRIES
RESULTS FROM PISA 2000
How well can young people read, as they approach the end of their basic education? The OECD Programme for International Student Assessment (PISA) survey provides a more complete answer to this question than has previously been possible at an international level. It shows reading literacy levels of students aged 15, in 32 countries, in terms of how well they can use written materials to meet the challenges of the real world and to be active lifelong learners.
Following the initial report on the results of the first PISA survey, a further report, Reading for Change, which is summarised in this brochure, looks more closely at performance in reading. Some countries manage to combine high results overall with relatively small differences among students; in others, there are worryingly large number of students capable of only the most basic reading tasks. More specifically, there are particularly wide inequalities, in some countries, in the ability of students to deal with written materials in non-continuous form – such as graphs or forms. Students also show greater differences in many countries in their ability to retrieve required information from texts, than when it comes to interpreting or reflecting on information. Such outcomes give clues to policy makers about how their education system might improve.
More specific policy messages come from looking at which students read well. Those from more advantaged backgrounds perform better on average, but the gap varies greatly across countries. Female students perform better than male students in every country. But the most striking result reported here is the difference between students who are more "engaged" in reading and those who are less so. Those who express positive attitudes to reading, who read a variety of materials, and who spend time reading for pleasure, are on average much better readers. The analysis also indicates that reading engagement can to some extent compensate for disadvantage in students' social background. This result underlines the critical importance to school systems of developing strategies that will motivate students as well as instruct them.
This report will help readers understand better the factors associated with reading well in the modern world.
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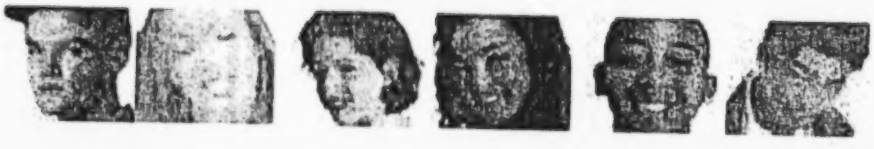

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